



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/558,935

12/01/2005

Satoshi Furuta

4700.P0320US

6397

23474 7590 01/21/2009
FLYNN THIEL BOUTELL & TANIS, P.C.
2026 RAMBLING ROAD
KALAMAZOO, MI 49008-1631

EXAMINER

KATAKAM, SUDHAKAR

ART UNIT

PAPER NUMBER

1621

MAIL DATE

DELIVERY MODE

01/21/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/558,935	Applicant(s) FURUTA, SATOSHI	
	Examiner Sudhakar Katakam	Art Unit 1621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 January 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3, 10 and 12-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 10 and 12-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Status of the application

1. Receipt of Applicant's request for continued examination filed on 26th Dec 2007 is acknowledged.

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 26th Dec 2007 has been entered.

2. Applicants amended the claim 1.

3. Applicants cancelled the claims 4-9 and 11.

4. Applicants' added the new claims 12-19.

5. In view of applicants' amendments and addition of new claims, a new ground(s) of rejection is made in view of different interpretation of the previously applied reference, and provide an explanation of the rejection.

6. The claims 1-3, 10 and 12-19 are examined on the merits in this office action.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

9. Claims 1-3,10 and 12-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Ginosar et al** (US 6,887,283).

Ginosar et al teach a process for reacting organic compounds having the generic formula R_1COOR_2 with short chain (C_1 to C_4) alcohols in a single critical fluid phase medium over an acidic or basic catalyst to produce alkyl esters [col.3, lines 40-60]. The organic compounds selected from the family of compounds known as acylglycerols, fats, oils, waxes, or free fatty acids have the general formula R_1COOR_2 [col.4, lines 45-60], **Ginosar et al** also teach a catalyst, for their transesterification process, such as non-crystalline inorganic oxides such as alumina, oxides of phosphorus, zirconium dioxide, as well as mixtures of the above group [col. 4, lines 60-67 through col. 5, lines 1-7].

The difference between the instant claims and **Ginosar et al** is that the instant claims are further limited to the contents of the metals in the catalyst and phase of the alcohol in the reaction process, whereas **Ginosar et al** suggested use of "alcohol steam" and silent on the elemental contents of the catalyst.

The claims would have been obvious because, a person of ordinary skill has a good reason to pursue the known options within his or her technical grasp. If this leads to the anticipated success, it is likely the product, not of innovation, but of ordinary skill and common sense.

The claim would have been obvious because the design incentives or market forces provided a reason to make an adaptation, and the invention resulted from application of the prior knowledge in a predictable manner.

All the claimed elements were known in the prior art and one skilled person in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination would have yielded predictable results to have yielded predictable results to one of ordinary skill in the art at the time of the invention.

The Supreme Court in KSR noted that if the actual application of the technique would have been beyond the skill of one of ordinary skill in the art, then the resulting invention would have been obvious because one of ordinary skill could not have been expected to achieve it.

Therefore, it would be prima facie obvious to one of ordinary skill in the art at the time of the invention, to determine the reactants phase, such as vapor or liquid, and the amount of catalyst in the process, in the optimization process. One of ordinary skill in the art would be motivated to optimize these limitations with the reasonable expectation that yields would be increased, the energy consumption would be lowered and to facilitate operation overall. Therefore, one of ordinary skill in the art can construct the

Art Unit: 1621

instant applicants' catalyst using **Ginosar et al** teaching of metals chosen from group IVB elements for the catalyst for transesterification reaction with a reasonable expectation of success. Absent any showing of unusual and/or unexpected results over Applicant's particular process, the art obtains the same effect on the purity and yield of the product. One of ordinary skill in the art would be motivated to tweak and optimize these parameters to arrive at the instantly claimed invention. The expected result would be the efficient production for the transesterification process for the chemical industry.

10. Claims 16-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Bayenes et al** (US 5,508,457).

Bayenes et al teach a process for the transesterification of carboxylic acid esters in presence of a catalyst comprising at least one silicate of the group IVB elements, and the said silicates can either be crystalline silicates or amorphous silicates [col. 1, lines 1-67]. The active metal component used in the catalyst according to the invention is chosen from the group IVB of the period table of elements [col. 1, lines 60-67]. Said group IVB consists of the elements titanium, zirconium, hafnium etc., and of these elements especially titanium and zirconium are preferred, whereby the best results are obtained with titanium [col. 1, lines 60-67] and the actual choice of the catalyst, that is crystalline or amorphous, type of active element and the actual structure depends on the type of reaction [col.3, lines 3-6]. Catalyst contains 1 to 60% of group IV B element, calculated as metal [col. 8, lines 26-28]. **Bayenes et al** also teach triglycerides are transesterified with alkanol [col. 8, lines 22-23].

The difference between the instant claims and **Bayenes et al** is that the instant claims are further limited to the contents of the metals in the catalyst and phase of the alcohol in the reaction process, whereas **Bayenes et al** silent on these properties in their process.

The claims would have been obvious because, a person of ordinary skill has a good reason to pursue the known options within his or her technical grasp. If this leads to the anticipated success, it is likely the product, not of innovation, but of ordinary skill and common sense.

The claim would have been obvious because the design incentives or market forces provided a reason to make an adaptation, and the invention resulted from application of the prior knowledge in a predictable manner.

All the claimed elements were known in the prior art and one skilled person in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination would have yielded predictable results to have yielded predictable results to one of ordinary skill in the art at the time of the invention.

The Supreme Court in KSR noted that if the actual application of the technique would have been beyond the skill of one of ordinary skill in the art, then the resulting invention would have been obvious because one of ordinary skill could not have been expected to achieve it.

Therefore, it would be prima facie obvious to one of ordinary skill in the art at the time of the invention, to determine the reactants phase, such as vapor or liquid, and the amount of catalyst in the process, in the optimization process. One of ordinary skill in the art would be motivated to optimize these limitations with the reasonable expectation that yields would be increased, the energy consumption would be lowered and to facilitate operation overall. Therefore, one of ordinary skill in the art can construct the instant applicants' catalyst using **Bayenes et al** teaching of metals chosen from group IVB elements for the catalyst for transesterification reaction with a reasonable expectation of success. Absent any showing of unusual and/or unexpected results over Applicant's particular process, the art obtains the same effect on the purity and yield of the product. One of ordinary skill in the art would be motivated to tweak and optimize these parameters to arrive at the instantly claimed invention. The expected result would be the efficient production for the transesterification process for the chemical industry.

Response to Arguments

11. Applicant's arguments filed on 24th Jan 2008 have been fully considered but they are not persuasive.

The above new grounds of rejection address the applicants arguments. Applicants also argue that their process has advantages over the prior art. However, applicants need to show their data in a side by side comparison with the closest prior art.

Applicants show how the cited references differ from the instant invention, but the obviousness test under 35 U.S.C. 103 is whether the invention would have been obvious in view of the prior art taken as a whole. **In re Metcalf et al. 157 U.S.P.Q. 423.**

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to utilize the teachings of the above references to arrive at instant applicants' process with a reasonable expectation of success. Changing such parameters is prima facie obvious because an ordinary artisan would be motivated to optimize a process. Merely modifying the process conditions is not a patentable modification absent a showing of criticality. In re Aller, 220 F.2d 454, 105 U.S.P.Q. 233 (C.C.P.A. 1955).

Conclusion

12. No Claim is allowed.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sudhakar Katakam whose telephone number is 571-272-9929. The examiner can normally be reached on M-F 8:30 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Daniel Sullivan can be reached on 571-272-0779. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.

Art Unit: 1621

For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Sudhakar Katakam/
Examiner, Art Unit 1621

/Jafar Parsa/
Primary Examiner, Art Unit 1621